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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/635,867

08/06/2003

Susumu Kashiwase

848075-0053

8336

29619 7590 10/04/2007
SCHULTE ROTH & ZABEL LLP
ATTN: JOEL E. LUTZKER
919 THIRD AVENUE
NEW YORK, NY 10022

EXAMINER

NGO, NGUYEN HOANG

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

10/04/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/635,867

Applicant(s)

KASHIWASE, SUSUMU

Examiner

Nguyen Ngo

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 August 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

This communication is in response to the amendment of 7/30/2007. All changes Claims have been entered. Accordingly, Claims 1-61 are currently pending in the application.

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the frame allocating section must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an

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application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6, 7, 8, 18, 24, 35, 49, are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 6, 7, 8, 18, 24, 35, 49 it is not clear what is exactly meant by the limitation "communication terminals in the packet communications every said carrier" (claim 6 line 8). Applicant is encouraged to clarify such limitation.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the

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subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 4, 5-11, 16-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin et al. (US 6018528), in view of Yano et al. (US 6563806), hereinafter referred to as Gitlin and Yano.

Regarding claim 1, 16, 28, 45 Gitlin discloses a communication system comprising:

a first wireless communication terminal (low-speed users D, K, N, P, R, S, T of figure 5) for performing a packet communication (communications transmission medium, column 2 lines 58-60) with respect to said base station by using one carrier (low-speed users will be permitted to fill one or more of the available time slots 44 in a frame (one carrier), column 4 lines 88-23 and 50 of figure 5); and

a second wireless communication terminal (high speed users B, G, L of figure 5) for performing a packet communication with respect to said base station by using

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a plurality of carriers at the same time (higher-speed users can fill one ore more of the available frequency bands 42 (plurality of carriers) or time slots 44, col4 lines 20-23),

Gitlin however fails to specifically disclose the specific limitation of a base station and it's specific components. Gitlen however discloses of cellular communication systems that may use the concept described above (col1 lines 5-31) and it is well-known that a cellular communication system comprises a base station. In a similar endeavor, Yano discloses of such a system comprising a base station, a first wireless communication terminal and a second wireless communication terminal (figure 1 and abstract). Yano further discloses of an allocation information applying means for applying allocation information for said first wireless communication terminal or said second wireless communication terminal when the carriers are allocated to either said first wireless communication terminal or said second wireless communication terminal (abstract and col4 lines 41-67 and col9 lines 34-43). Yano further discloses an allocation information storage means for storing thereinto said allocation information (col5 lines53- col6 line 7). It would thus be obvious to a person skilled in the art at the time the invention was made to incorporate the concept of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin into the system comprising a base station for assigning communication channels as disclosed by Yano in order to send data between base stations and user terminals in a efficient manner.

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Regarding claim 2, 3, 29, 30, the combination of Gitlin and Yano, more specifically Yano discloses a wireless communication system as claimed in claim 1 wherein said allocation information storage means stores said allocation information in such a manner that said allocation information is arrayed in accordance with a predetermined sequence; and said allocation information applying means allocates said allocation information with respect to said first wireless communication terminal from one direction of said array, and also allocates said allocation information to said second wireless communication terminal from the other direction of said array (col5 lines 35-45).

Regarding claim 4, 31, the combination of Gitlin and Yano, more specifically Yano discloses having said allocation information storage means store the allocation information allocated to said wireless communication terminal as separate arrays (col5 line51-col6 line8 and col15 lines 25-56).

Regarding claim 5, 9, 17, 19, 21, 32, 38, 46, 50, 52, the combination of Gitlin and Yano, more specifically Gitlin discloses a wireless communication system as claimed in claim 1 wherein said packet communication is carried out by using a variable length packet (figure 4).

Regarding claim 6, 7, 10, 11, 18, 20, 35, 36, 39, 40, 49, 51 the combination of Gitlin and Yano, more specifically Gitlin discloses a communication system as claimed in claim 1, further time slot allocating means for allocating time slots which are used

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in packet communications by said first and second wireless communication terminals (as seen in figure 5), the time slot allocating means allocates one wireless communication terminal among said first and second wireless communication terminals to one unit of a time slot distribution used by said first (low-speed users D, K, N, P, R, S, T being allocated one time slot as seen in figure 5) and second wireless communication terminals in the packet communications every said carrier (high-speed user G being allocated to time slots across frequency bands f0 to f6 of figure 5). Gitlin further discloses allocation of first wireless communication terminal and second wireless communication terminal be in an independent manner (independent transmissions, col8 lines 24-30).

It should further be noted that Yano discloses that in TDMA, carrier frequencies are used to transmit a frame, which includes multiple time slots having these carrier frequencies (col5 lines 5-13) thus the base station of Yano discloses a frame allocating section (figure 2).

Regarding claim 8, 37 the combination of Gitlin and Yano fails to specifically disclose allocating said first wireless communication terminal and said second wireless communication terminal in an alternate manner. However this would have been obvious to a person skilled in the art to alternate allocations between users, as this is simply a network parameter that may be chosen by the network/administrator. It should further be noted that this is simply a system design choice.

Regarding claim 22, 53 Gitlin discloses a wireless communication terminal for communicating with a base station apparatus which performs a packet communication with respect to both a wireless communication terminal for executing a packet communication by employing one carrier (low-speed users D, K, N, P, R, S, T of figure 5) and also another wireless communication terminal for executing a packet communication by employing a plurality of carriers (high speed users B, G, L of figure 5) at the same time (col4 lines 14-20) wherein said wireless communication terminal judges a destination of a communication packet transmitted from said base station based upon said allocation information contained in a header of said transmitted packet so as to be communicated with said base station (col2 lines 35-41 and figure 4). It should be noted that it is well known in the art that destination addresses are allocated in a header of a packet for communication between source and destination.

Gitlin however fails to specifically disclose the specific limitation of a base station and it's specific components. Gitlen however discloses of cellular communication systems that may use the concept described above (col1 lines 5-31) and it is well-known that a cellular communication system comprises a base station. In a similar endeavor, Yano discloses of such a system comprising a base station, a first wireless communication terminal and a second wireless communication terminal (figure 1 and abstract). Yano further discloses of an allocation information applying means for

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applying allocation information for said first wireless communication terminal or said second wireless communication terminal when the carriers are allocated to either said first wireless communication terminal or said second wireless communication terminal (abstract and col4 lines 41-67 and col9 lines 34-43). Yano further discloses an allocation information storage means for storing thereinto said allocation information (col5 lines53- col6 line 7). It would thus be obvious to a person skilled in the art at the time the invention was made to incorporate the concept of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin into the system comprising a base station for assigning communication channels as disclosed by Yano in order to send data between base stations and user terminals in a efficient manner.

Regarding claim 23, 25, and 27, 54, 60 the combination of Gitlin and Yano, more specifically Gitlin discloses a wireless communication system as claimed in claim 1 wherein said packet communication is carried out by using a variable length packet (figure 4).

Regarding claim 24, 26, 56, 59 Gitlin discloses a wireless communication terminal for communicating with a base station apparatus which performs a packet communication with respect to both a wireless communication terminal for executing a packet communication by employing one carrier (low-speed users D, K, N, P, R, S, T of figure

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5) and also another wireless communication terminal for executing a packet communication by employing a plurality of carriers (high speed users B, G, L of figure 5) at the same time (col4 lines 14-20)

time slot allocating means for allocating time slots which are used in packet communications by said first and second wireless communication terminals (as seen in figure 5), the time slot allocating means allocates one wireless communication terminal among said first and second wireless communication terminals to one unit of a time slot distribution used by said first (low-speed users D, K, N, P, R, S, T being allocated one time slot as seen in figure 5) and second wireless communication terminals in the packet communications every said carrier (high-speed user G being allocated to time slots across frequency bands f_0 to f_6 of figure 5).

wherein said wireless communication terminal judges a destination of a communication packet transmitted from said base station based upon said allocation information contained in a header of said transmitted packet so as to be communicated with said base station (col2 lines 35-41 and figure 4). It should be noted that it is well known in the art that destination addresses are allocated in a header of a packet for communication between source and destination.

Gitlin however fails to specifically disclose the specific limitation of a base station and it's specific components. Gitlen however discloses of cellular communication

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systems that may use the concept described above (col1 lines 5-31) and it is well-known that a cellular communication system comprises a base station. In a similar endeavor, Yano discloses of such a system comprising a base station, a first wireless communication terminal and a second wireless communication terminal (figure 1 and abstract). Yano further discloses of an allocation information applying means for applying allocation information for said first wireless communication terminal or said second wireless communication terminal when the carriers are allocated to either said first wireless communication terminal or said second wireless communication terminal (abstract and col4 lines 41-67 and col9 lines 34-43). Yano further discloses an allocation information storage means for storing thereinto said allocation information (col5 lines53- col6 line 7). It would thus be obvious to a person skilled in the art at the time the invention was made to incorporate the concept of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin into the system comprising a base station for assigning communication channels as disclosed by Yano in order to send data between base stations and user terminals in a efficient manner.

Regarding claims 33, 34, 47, 48, 55, 58, 61 the combination of Gitlin and Yano, more specifically Yano discloses a wireless communication system as claimed in claim 28 wherein when said second wireless communication terminal performs the communication by using said plurality of carriers, said allocation information applying section allocates said single-carrier/multi-carrier allocation information to said second

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wireless communication terminal in a case that said multi-carrier/single carrier allocation information is unavailable (col2 lines 56-67 and col10 lines 1-12 and col12 lines 20-33).

6. Claims 12-15, 41-44, are rejected under 35 U.S.C. 103(a) as being unpatentable over Gitlin et al. (US 6018528), in view of Yano et al. (US 6563806), in further view of Krishnamoorthy et al. (US 2002/0051424), hereinafter referred to as Gitlin, Yano, and Krishnamoorthy.

Regarding claim 12-15, 41-44 the combination of Gitlin and Yano fails to specifically disclose having the time slot distribution determining means determine the time slot distributions which can be used by said first wireless communication terminal and said second wireless communication terminal based upon a comparison result. Yano however discloses selecting a channel that meets the specified communication quality (col1 lines 34-40). Krishnamoorthy however discloses a method for assigning time slots to a user based upon user's data rate requirement, the actual data rate, and quality of service contracted for by the user. Krishnamoorthy further discloses that the assignment of the time slots within the frame is made dynamically (abstract and page 1 [0004]). It would have thus been obvious to a person skilled in the art at the time the invention was made to incorporate the concept of determining the time slot distributions which can be used by a user as disclosed by Krishnamoorthy, into the method of optimizing spectral efficiency using time-frequency code slicing as disclosed by Gitlin and Yano in order to efficiently determine the allocation of time slots to different users.

Response to Arguments

7. Applicant's arguments with respect to claim 1-27 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen Ngo whose telephone number is (571) 272-8398. The examiner can normally be reached on Monday-Friday 7am - 3:30 pm.

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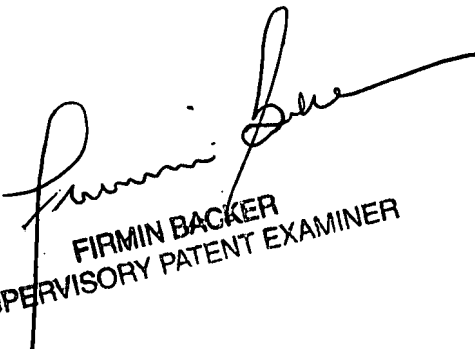
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on (571) 272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*** N.W.

Nguyen Ngo

United States Patent & Trademark Office
Patent Examiner AU 2663
(571) 272-8398


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